



ARMY GROUND RISK-MANAGEMENT INFORMATION

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Waging War in the Winter

with the Army Mountain
Warfare School



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Is it Time for Driver Training to Become a Full-fledged Army Life Skill?

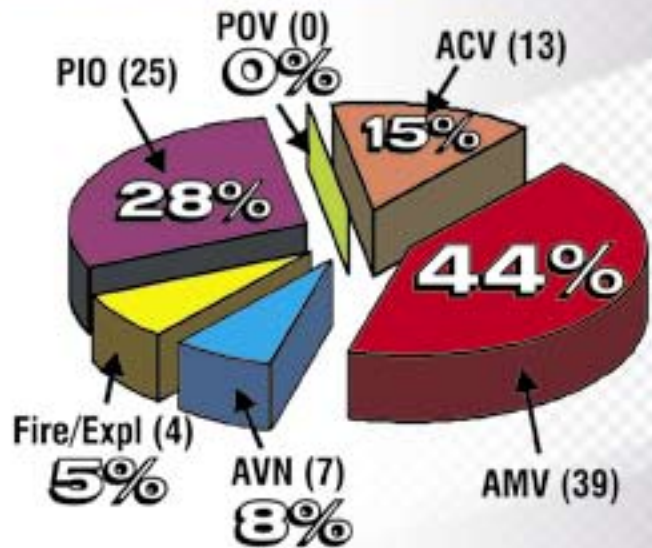
I love the quote by Albert Einstein, "We can't solve problems by using the same thinking we used when we created them." While sitting on NASA's Aeronautical Safety Assessment Panel, I noticed this same thinking held true during the *Columbia* shuttle tragedy investigation. NASA's research showed how losing shuttle foam over time eventually led to a disaster and realized "the machine was talking to us, but nobody was listening." Our Army statistics are also talking to us with nearly three-fourths of all accidental deaths happening when Soldiers are behind the wheel. Are we listening?

During this past year, the Safety Center has aggressively analyzed how our Army has lost Soldiers to accidents. For Soldiers who were not deployed, 72 percent of all accidental fatalities were from POV accidents. In theater, over two-thirds of our fatalities happened in Army motor vehicles and combat vehicles. Yes, the "Big Army Machine" is talking to us, and we are carefully listening so we can apply Einstein's advice. Not only is the Safety Center continuing to learn from accidents, it is now preparing to collect data on near misses to better understand the problems. Innovative solutions are headed your way!

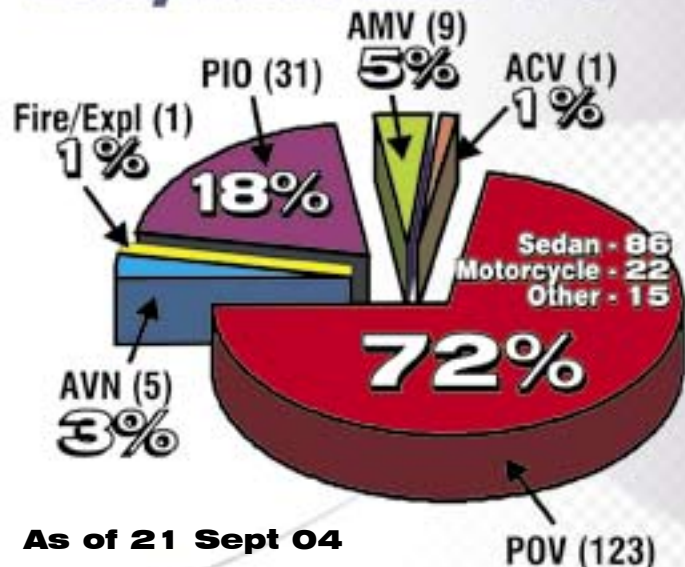
Senior Army leadership is planning to make driving a "Soldier life skill." We are going to attack POV accidents with three major tools: an improved Defensive Driver Course (DDC), to include the use of simulators; online risk management through ASMIS-1, and hands-on Advanced Driver Skill Training partnered with General Motors. We're going to maintain basic motorcycle skill training at all installations and eventually add advanced motorcycle training to the curriculum to further enhance rider skills. Additionally, we're going to take a hard look at aggressive driving and the human aspects of operating a vehicle. During 2003, our Nation lost more than 42,600 people on the highways. Our goal is to make 2005 the safest year ever for Soldiers, civilians, contractors, and family members behind the wheel.

The G3 will attack AR 600-55, *Army Driver and Operator Standardization Program*, with a

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As of 21 Sept 04

critical eye on lessons learned from OEF and OIF. We know that driver inexperience, speed, seatbelt use, and rollovers are major contributors to accidental fatalities. We will blend the best attributes of military and civilian driver training to shape this Soldier life skill.

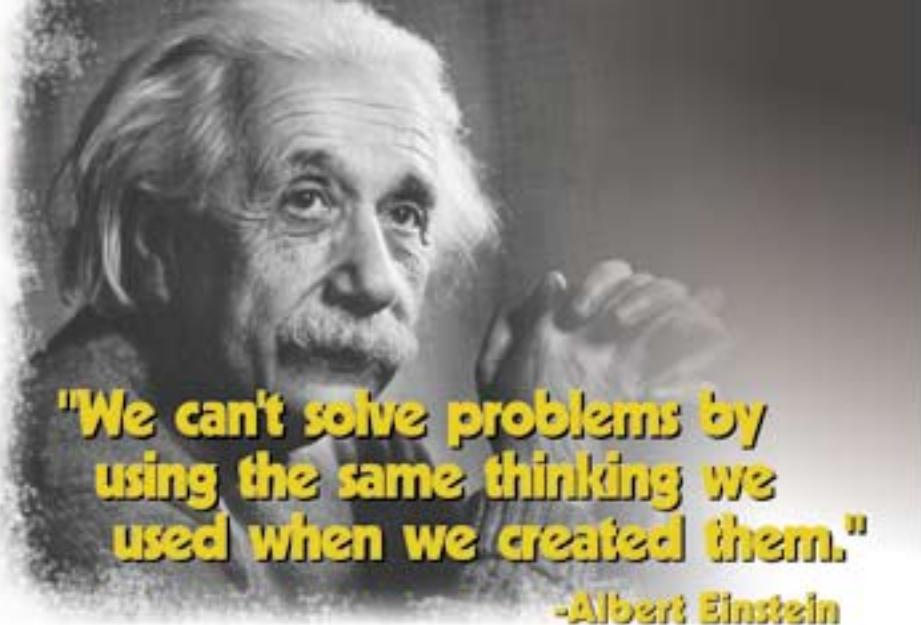
Aviation skills are taught on a basis of readiness level progression. This allows aviators to move from a basic to a more advanced flying skill level—one managed by control measures. Maybe it is time to do this with driving skills for military vehicles. We can no longer afford to “kick the tires, light the fires, and move out.”

I greatly appreciate those of you using the POV module of ASMIS-1. We've had over 90,000 assessments without a single fatality. The most powerful aspect of this tool is that it requires leaders to talk to Soldiers—especially those in the 18- to 24-year-old high-risk group. The intent of this online tool is to focus on the risk associated with Soldiers driving from their home to a given location for pass, leave, or even during a TDY. Keep up the great work, but let's ensure we are using the tool appropriately. Troops are telling me that some leaders may not be using common sense when requiring ASMIS-1.

So, look for lots of energy in the Army's driver programs. The Web distance learning; classroom instruction, including the use of advanced simulators, and hands-on driver training will move us to the next level. It's clear that we can't solve the Army's driver training problems with the same thinking we've used during the last 10 years. We can win this battle with new, innovative thinking and by listening to the troops in the field. Continue to send us your thoughts and war stories! ★

Our Army at War: Be Safe and Make It Home!


BG Joe Smith





COTTON KILLS!

MAJOR DANIEL F. PIPES

Army Mountain Warfare School
Training Division Chief

If you want to increase the combat effectiveness of your organization in cold weather one way is to forbid your Soldiers from wearing the brown cotton T-shirt on any field operations.

When dressing for the cold, the first layer of clothing must wick moisture away from the body because sweat chills quickly if it remains trapped against the skin. Medium or lightweight polypro or a similar synthetic fiber pulls moisture away from the skin. Cotton, by contrast, has no wicking ability, trapping moisture against the body and continually drawing heat from the body's core. Placing a cotton T-shirt over a polypro first layer is a common practice, but that's not the correct solution. Moisture wicked off the body by the polypro is trapped by the cotton and not allowed to pass outside. The brown cotton T-shirt should only be worn in the summer or in garrison.

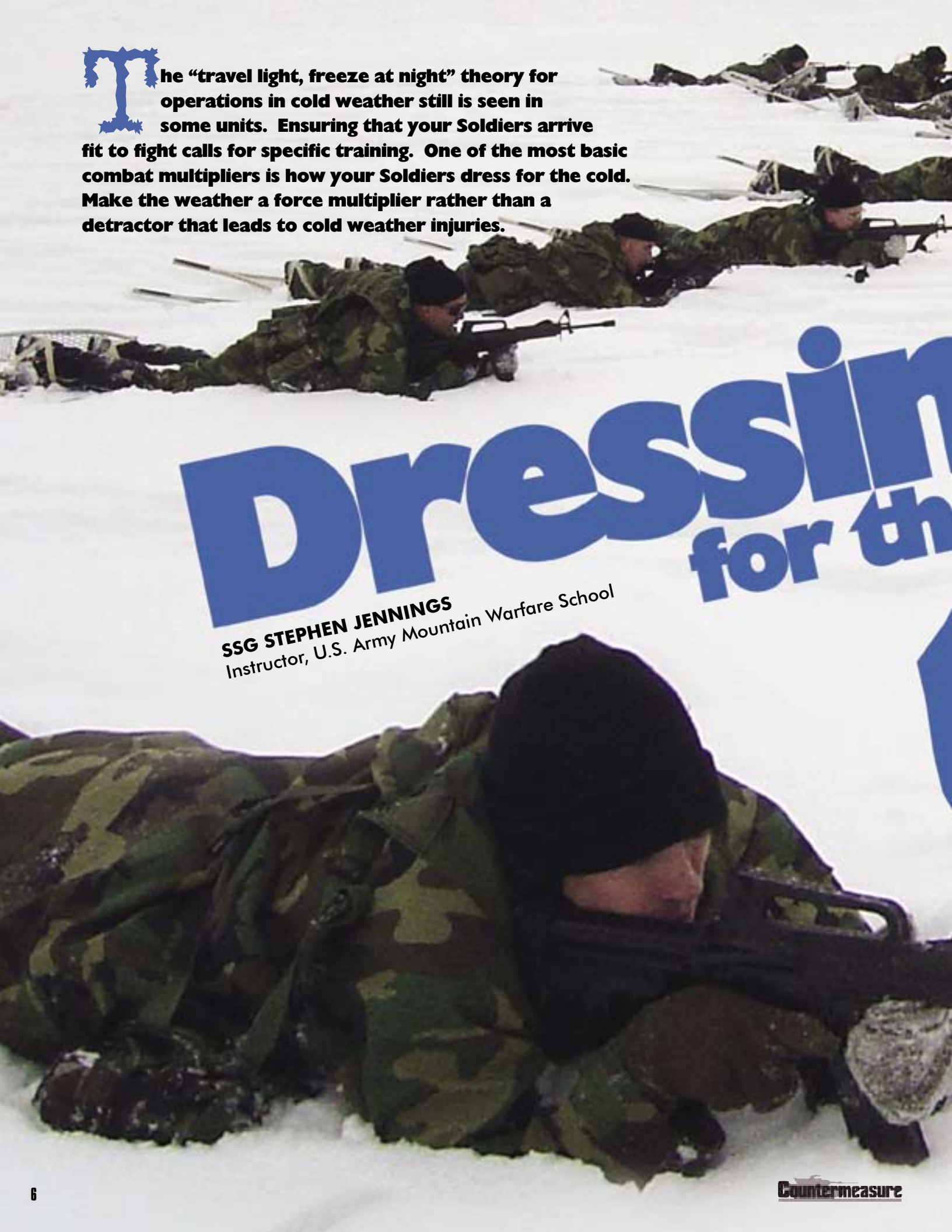
Contrary to popular belief, this problem is not limited to the upper reaches of the Yukon, glacier travel, or the polar regions. If you are in an area where the temperature drops below 60 degrees Fahrenheit and the wind blows more than 10 miles per hour, hypothermia is a potential threat. Mount Washington, N.H., has some of the most extreme winter weather in the nation. However, more people die of hypothermia there during the summer months (June to August) than all other months combined, and most of them are found wearing cotton. If you train the way you fight and are serious about keeping your Soldiers dry, you must get rid of the brown cotton T-shirts in the field.

Soldiers love to have the latest gear. Officers should invest in a basic load of lightweight polypropylene T-shirts and set the example for their subordinates. They're more comfortable on long road marches on hot summer days, and also in the winter as the first wicking layer. Encourage your S-4 to purchase and issue these items to your Soldiers. Use them as rewards for outstanding performance.

Do whatever it takes to ensure your Soldiers remain dry. Removing the brown cotton T-shirt from any field operation will make a huge difference in your Soldiers' survivability.

For more information, visit www.benning.army.mil/amws or mwsvt@vt.ngb.army.mil.

Contact the author at the Training Division, Army Mountain Warfare School, at (802) 899-7221 /7220.



The “travel light, freeze at night” theory for operations in cold weather still is seen in some units. Ensuring that your Soldiers arrive fit to fight calls for specific training. One of the most basic combat multipliers is how your Soldiers dress for the cold. Make the weather a force multiplier rather than a detractor that leads to cold weather injuries.

Dressing for the

SSG STEPHEN JENNINGS

Instructor, U.S. Army Mountain Warfare School

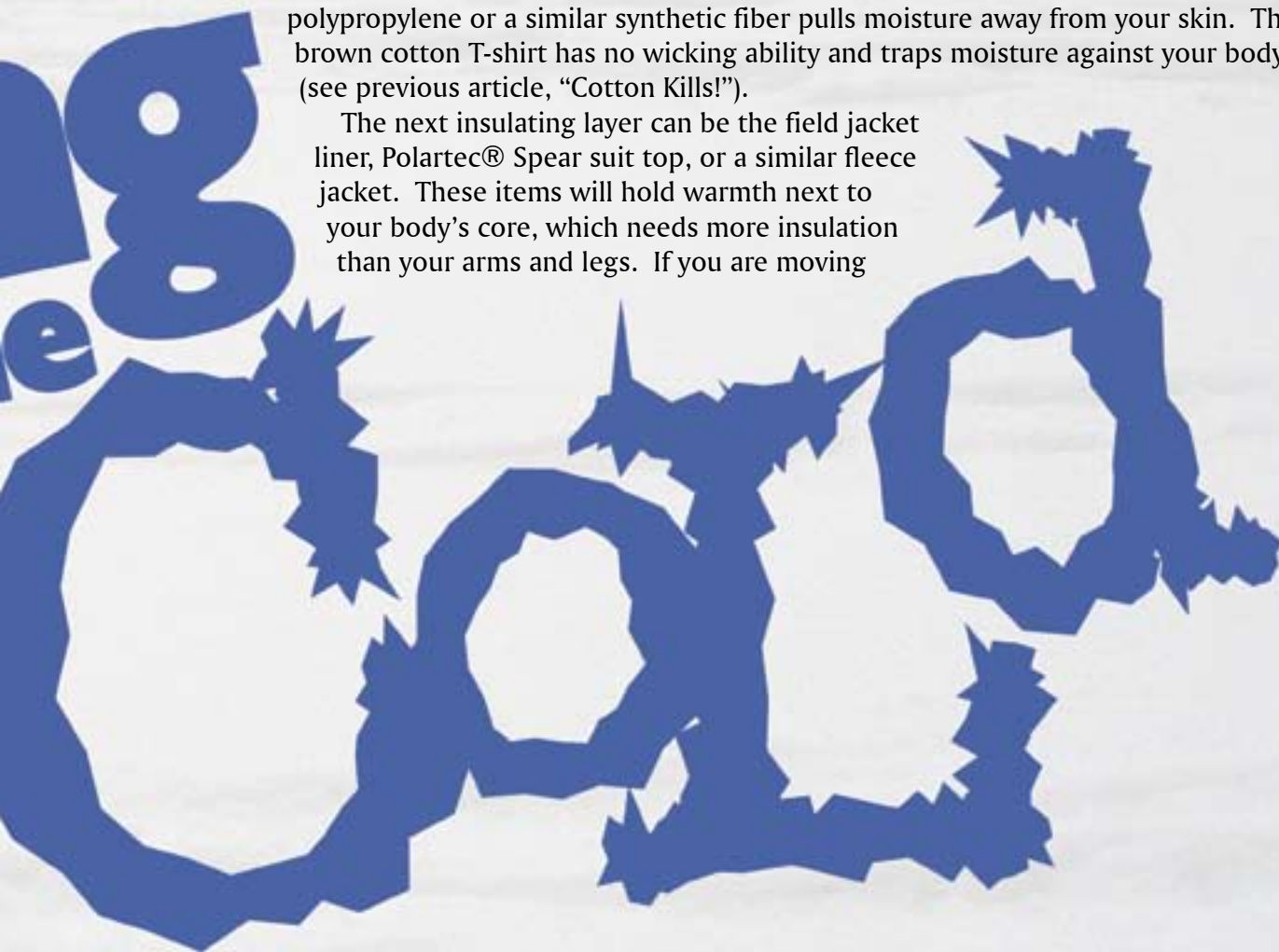


Our bodies produce heat, which keeps us warm and alive. Being cold and wet forces our bodies to work overtime to compensate for heat loss. If you can't generate more heat than you lose, you eventually will become hypothermic and possibly die if you're not treated.

To keep your head warm, use a wool or Lycra watch cap and the multifunction neck gaiter for field operations. During periods of extended exertion, a watch cap can be removed easily for quick ventilation.

The first layer of clothing must wick moisture away from your body. Sweat will chill Soldiers quickly if it remains trapped against the skin. Medium or lightweight polypropylene or a similar synthetic fiber pulls moisture away from your skin. The brown cotton T-shirt has no wicking ability and traps moisture against your body (see previous article, "Cotton Kills!").

The next insulating layer can be the field jacket liner, Polartec® Spear suit top, or a similar fleece jacket. These items will hold warmth next to your body's core, which needs more insulation than your arms and legs. If you are moving



regularly, a pair of mid- to lightweight polypropylene underwear often will be all you need to protect your extremities.

Finally, a breathable waterproof or windproof outer shell over the insulating layers allows your body's moisture to escape while preventing rain and snow from soaking through to your skin. The issued Gore-Tex® pants and parka work well as the final layer. Breathability is the key to keeping dry. Don't confuse the Gore-Tex® jacket with a rain suit. A rain suit may take up less space in your



Dressing for the Cold

rucksack, but the ability to wick moisture away from your body in cold weather is critical.

Size your winter boots correctly by wearing the same socks you'll wear in the field. Your first sock will be a lightweight polypropylene or dress sock. (Never wear cotton socks in the winter.) The first sock layer helps reduce friction, which causes blisters. Next, add a mid- to heavyweight insulating sock. In extreme cold, add a final Gore-Tex® bootie to wick moisture away from your foot.

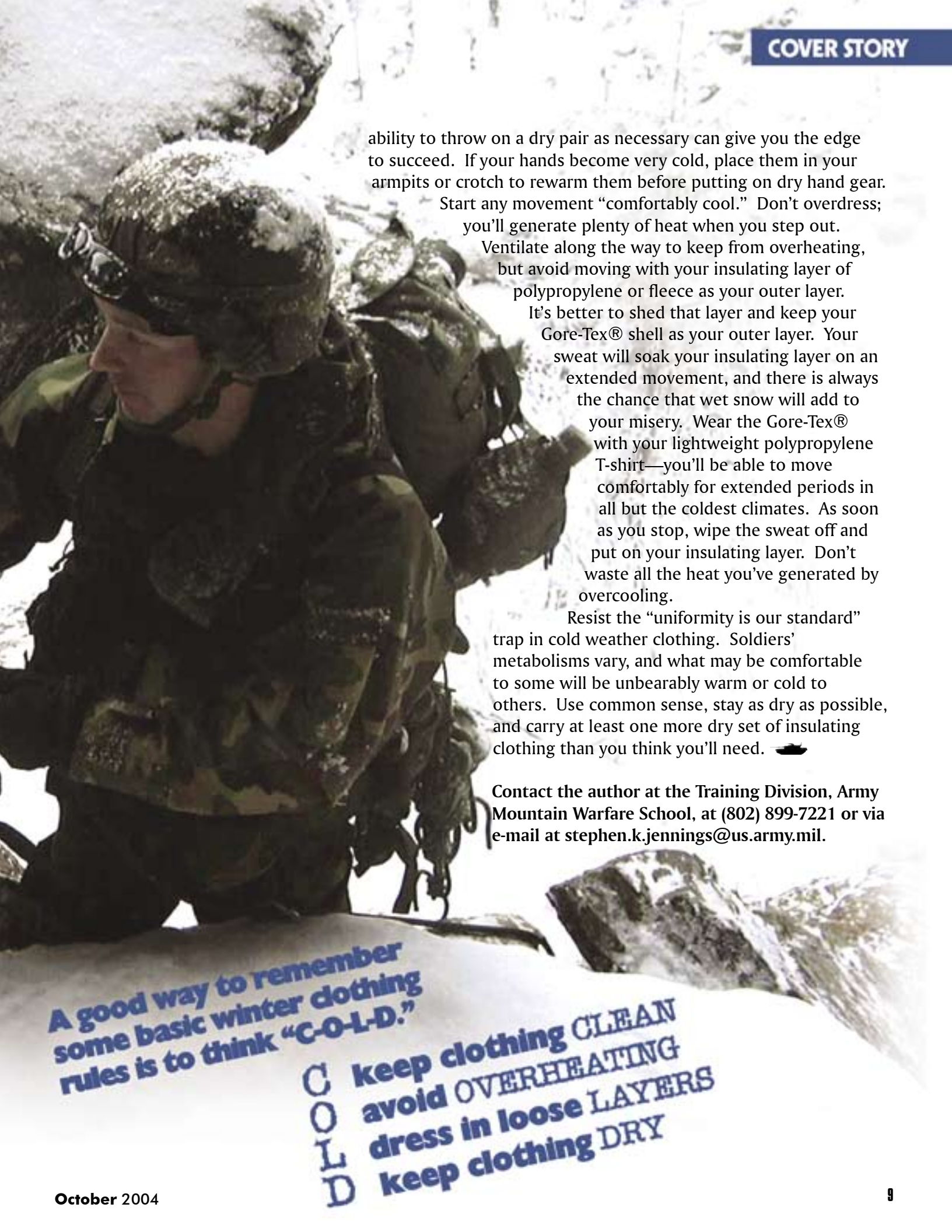
Boots should fit snugly, but not tight. Little or no heel lift is an indicator you're on the right track. Walk up and down an incline or several flights of stairs to check for heel lift. Leave about a half-inch between your toe and the end of the boot. You should have enough space if you can lift your toes easily. Wear the boots for several hours before committing them to any extended operations.

Change your socks as often as needed or as the tactical situation allows. Massage your feet to help rewarm them and restore circulation. Flexing your toes or stomping your boots helps to move warm blood around your feet if you're in a defensive position or guard post where movement is restricted.

Your hands—like your feet—get cold quickly if they're not covered. Generally, mitten-style hand gear is warmer than gloves. Gloves should not restrict blood flow to the fingers. Wear wool or polypropylene glove liners for fine hand work, but be sure to place them back in an over glove immediately. Minimize the time you have to remove your outer layers, and also practice basic Soldier skills with your over mitts. It takes some time, but all Soldiers can perform the vast majority of their missions without exposing their hands to the cold if they're properly trained.

Handling fuel in the cold requires extra caution because skin can flash-freeze if it comes in contact with fuel. Fuel, unlike water, does not freeze at 32 degrees Fahrenheit. When handling fuel, use thick rubber gloves over your cold weather mittens. Keep in mind that once most cold weather gear is soaked with petroleum products, their insulating properties decrease dramatically. Immediately replace gas-soaked cold weather gear with a clean set.

Carry an extra set of outer gloves or mittens and several sets of liners. On extended operations, this allows Soldiers to dry one set while wearing the other. For shorter missions, the




ability to throw on a dry pair as necessary can give you the edge to succeed. If your hands become very cold, place them in your armpits or crotch to rewarm them before putting on dry hand gear.

Start any movement “comfortably cool.” Don’t overdress; you’ll generate plenty of heat when you step out.

Ventilate along the way to keep from overheating, but avoid moving with your insulating layer of polypropylene or fleece as your outer layer.

It’s better to shed that layer and keep your Gore-Tex® shell as your outer layer. Your sweat will soak your insulating layer on an extended movement, and there is always the chance that wet snow will add to your misery. Wear the Gore-Tex® with your lightweight polypropylene T-shirt—you’ll be able to move comfortably for extended periods in all but the coldest climates. As soon as you stop, wipe the sweat off and put on your insulating layer. Don’t waste all the heat you’ve generated by overcooling.

Resist the “uniformity is our standard” trap in cold weather clothing. Soldiers’ metabolisms vary, and what may be comfortable to some will be unbearably warm or cold to others. Use common sense, stay as dry as possible, and carry at least one more dry set of insulating clothing than you think you’ll need. 

Contact the author at the Training Division, Army Mountain Warfare School, at (802) 899-7221 or via e-mail at stephen.k.jennings@us.army.mil.

**A good way to remember
some basic winter clothing
rules is to think “C-O-L-D.”**

C keep clothing **CLEAN**
O avoid **OVERHEATING**
L dress in loose **LAYERS**
D keep clothing **DRY**



Stay Hydrated to Stay Safe

Drinking enough water is essential to preventing cold weather injuries. The average adult loses

1.5 to two liters of water each day. Being in a cold weather climate can greatly increase this water loss through the increased excretion by the kidneys, perspiration, and evaporation from the lungs (the breath you see on a cold day).

Dehydration is a leading cause of cold weather injuries. A dehydrated Soldier has inadequate blood flow to the extremities. This reduced circulation can contribute to a Soldier developing frostbite (freezing injury) or trench foot (non-freezing injury). First sergeants and support personnel bringing water up to line units can usually tell if Soldiers are hydrating properly by the amount of water they consume daily. It's not unusual for Soldiers to drink a gallon of water or more each day when moving extended distances in mountainous terrain during winter.

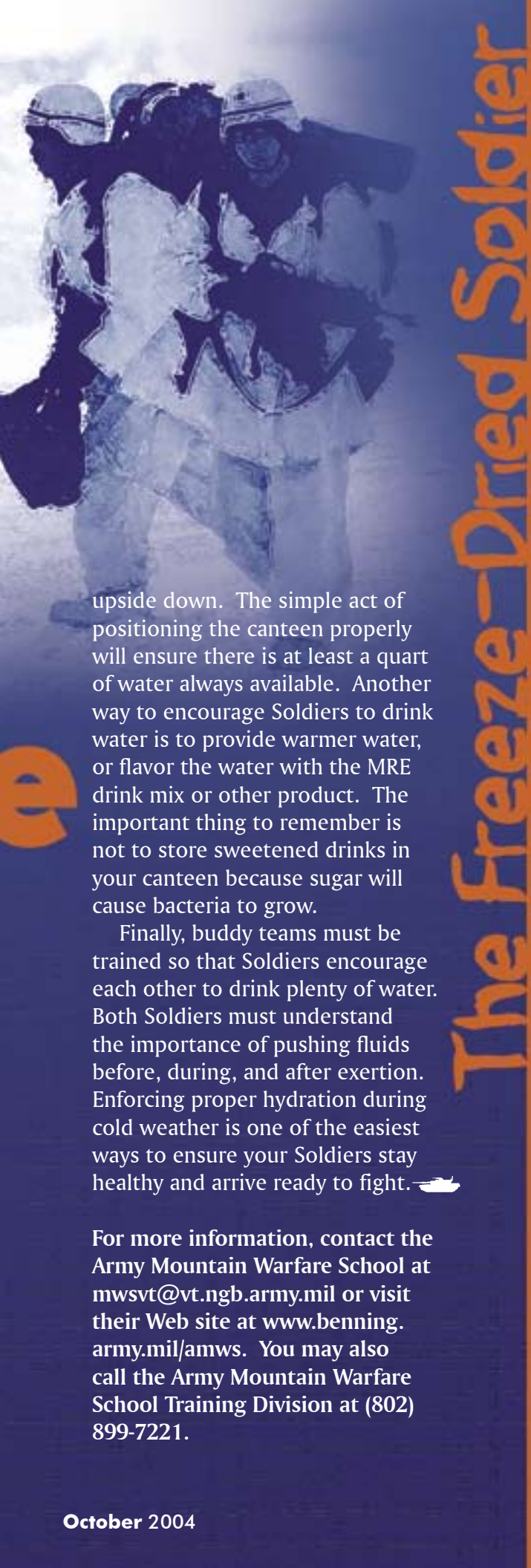
The adequacy of fluid intake can also be judged by urine color and volume. Darkly colored

urine—orange snow instead of light yellow

snow—and not needing to urinate upon awakening from a night's sleep are indicators of significant dehydration. Be aware this technique may not work for Soldiers who take vitamins, supplements, or medications that discolor the urine.

Soldiers may be less interested in drinking water during cold weather and, as a result, become dehydrated. Drinking in cold weather takes more effort than in warmer temperatures and canteens sometimes freeze. To prevent this, Soldiers should carry at least one canteen in the front chest pocket of their Gore-Tex® jacket to allow body heat to keep the water from freezing. Also, because water freezes from the top down, the canteen should be placed in the pocket

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U.S. Army Mountain Warfare School



The Freeze-Dried Soldier

upside down. The simple act of positioning the canteen properly will ensure there is at least a quart of water always available. Another way to encourage Soldiers to drink water is to provide warmer water, or flavor the water with the MRE drink mix or other product. The important thing to remember is not to store sweetened drinks in your canteen because sugar will cause bacteria to grow.

Finally, buddy teams must be trained so that Soldiers encourage each other to drink plenty of water. Both Soldiers must understand the importance of pushing fluids before, during, and after exertion. Enforcing proper hydration during cold weather is one of the easiest ways to ensure your Soldiers stay healthy and arrive ready to fight. —

For more information, contact the Army Mountain Warfare School at mwsvt@vt.ngb.army.mil or visit their Web site at www.benning.army.mil/amws. You may also call the Army Mountain Warfare School Training Division at (802) 899-7221.

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Dehydration is a condition Soldiers rarely think about during the winter months.

It's a dangerous condition—one Soldiers may not be watching out for because it often takes longer for the symptoms to become obvious. The following story describes how several seemingly unconnected factors nearly took the life of a Soldier in Germany.

It was typical October weather at the Grafenwohr training area and temperatures were hovering around the low 30s as we began our Primary Leadership Development Course (PLDC) training. Early on we'd set up a coffee fund, hoping the caffeine would help us stay awake during some of the less exciting classes. By itself, the coffee seemed an insignificant issue. However, coupled with other factors, it would nearly prove fatal for one of my classmates.

We were transitioning to the field mode of our training and it was the morning of the road march to the field training exercise (FTX) site. The weather was cold, and the thought of heat injuries was far from anyone's mind. We'd fallen behind schedule because of administrative reasons, and there was a sense of urgency because the first sergeant wanted the FTX site set up before lunch. The cadre leading the road march was fairly new and missed a turn en route, adding another two miles to our march.

We had made it to the FTX site when one of our Soldiers suddenly collapsed. Fortunately, three of our cadre members were trained combat

medics and immediately treated the Soldier and got her evacuated to a health clinic. She was treated, released with a profile, and allowed to complete her training. The doctor told her she'd nearly suffered heatstroke and was fortunate that medical aid was rendered so swiftly.

You ask how this could happen to a Soldier in near-freezing weather. The truth was she unknowingly had been putting herself at increased risk during the previous three weeks. Each day she'd been drinking six to eight cups of coffee and four to six cans of soda, and she was also taking Vivarin. In addition, she'd begun her menstrual cycle three days before the road march. All these caused her body to lose fluid which, when combined with her not drinking enough water, almost led to a disaster.

The sad thing is this incident could have been prevented by a few risk control measures (see the related article "Stay Hydrated to Stay Safe"). Leaders must recognize Soldiers can suffer dehydration year-round and that coffee and sodas aren't a substitute for water.

Since this incident, the academy has taken measures to address this risk. The cadre is very proactive about keeping Soldiers properly hydrated during winter months. Leaders are trained to watch for the danger signs of dehydration and excessive caffeine use.

Leaders must train their Soldiers about these dangers so they'll know how to avoid them. After all, while a freeze-dried meal is OK, a freeze-dried Soldier isn't! —

Contact the author via e-mail at alton.farris@us.army.mil.

A recent TV show posed the question of how to construct a fighting position in a snow-covered, frozen environment. Would you: (A) use explosives; (B) use heavy equipment; or (C) use destroyed structures? The show's host chose (C) because it would take too many explosives and too much time with heavy equipment to build a position. However, the best answer was one never considered: (D) build a snow fortification.

A snow fortification is nothing more than a fighting position built from snow. It's not necessary to dig into frozen ground to build a fortification that will stop small-arms fire, but it is essential to pack the snow down as much as possible. We at the Army Mountain Warfare School have tested this technique repeatedly with 5.56 mm, 7.62 mm, 9 mm, 12-gauge buckshot and slugs, and several AK-47s and AK-74s.

For these tests, we first began firing at 100 meters and advanced toward the fighting position while changing weapons systems. At 5 meters we fired 9 mm pistols, buckshot, and 12-gauge slugs. We've never had a round punch through the fortification into the Soldier's fighting area.

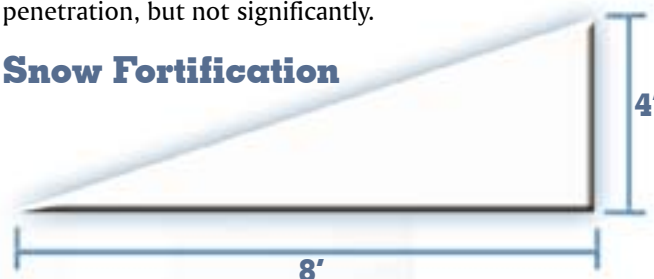
It doesn't take much to make a snow fortification—just some snow, several Soldiers, and at least 10 minutes. Make a mound of snow using shovels, MRE boxes, or any other field expedient snow-moving equipment. Pack the snow down by laying a box over the mound, and then have the Soldiers compact it with their bodies. Whenever possible, pack debris such as twigs, sticks, or boards into the snow. Frozen ice chunks or rocks tend to fragment and are not recommend.

The minimum dimensions of a properly constructed snow fortification are 8 feet by 4 feet. The fortification should be built in a wedge shape (see diagram). These dimensions and the unique shape will


effectively stop small-arms fire up to 7.62 mm. We've found the wedge shape helps deflect the rounds and is a very important part of the construction.

As a general rule, the more you compact the snow, the more effective it will be at stopping rounds. Conversely, the less you compact the snow, the less effective it will be. If resources are available, it's critical that you add other materials to the snow for more stopping power (see above paragraph regarding proper materials). Average penetration from our "non-scientific" field tests using snow fortifications built to the dimensions described above range from two feet to a maximum of four feet. We've noted that temperature and the resulting snow consistency do affect bullet penetration, but not significantly.

Snow Fortification



The same rules for building a normal fighting position apply when building a snow fortification. Build interlocking fields of fire, don't disturb the position's front if at all possible, and camouflage the position. If the snow is deep enough, the part of the position you'll fight from is the same as the normal fighting position. You also can build grenade sumps, or even have overhead cover. The main difference between the two is on the outside. If you're in snow that's less than waist deep, angle the snow upward towards you. This will make the bullets spin and ricochet off the position. If you're in snow deeper than your waist, the position should look like a normal fighting position.

Use these techniques if you find yourself in a snowy environment and need to build a fighting position quickly. Only 10 minutes could save your life! 

Contact the author at the Training Division, Army Mountain Warfare School, at (802) 899-7221 or via e-mail at larry.garner@us.army.mil.

Snow Forts

Walls That Stop Steel

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KEEP IT SHOOTIN' IN THE COLD!

SFC JIM ROONEY

Instructor

U.S. Army Mountain Warfare School

battle-sight zero your weapons in the area where you're going to use them. Temperature, elevation, and atmospheric pressure all affect where the round hits and how the weapon operates. A common error is to battle-sight zero your weapon at home station, and then deploy to a different area and wonder why your weapon isn't shooting to the point of aim. If you want to accurately engage your enemy with precision, then battle-sight zero your weapon in the area of operation.

These are only some of the things you need to consider when operating your weapon in a cold climate. We will continue to operate in cold weather environments worldwide, and we must be able to maintain our weapons in any climate. Including the basic lessons in this article in your pre-deployment training plan will help ensure you and your Soldiers are battle ready!

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Cold temperatures can greatly affect the maintenance, functioning, and employment of infantry weapons. To properly handle and care for your weapon under a variety of adverse conditions, you must take the temperature into consideration.

Preventing the weapon from freezing by NOT letting condensation form is extremely important. Condensation forms on weapons when they are taken from the extreme cold into any type of heated shelter. Condensation often is referred to as "sweating." This moisture freezes when you leave a heated area and internal parts may freeze to one another, causing stoppages. For this reason, it is best to leave weapons outside during freezing temperatures.

When left outside, weapons should be readily accessible, guarded, and sheltered where ice and snow will not get into the working parts, sights, or barrel. Because the condensation process will continue for about an hour after a weapon is taken inside a warm shelter, wait until the sweating stops before beginning cleaning. Once

you're inside the shelter, keep your weapon near the floor to minimize condensation. In addition, keeping the interior of the shelter close to 32 degrees Fahrenheit will minimize condensation and also prevent Soldiers from overheating. When you move back into the cold, you should manually operate your weapon by pulling the charging handle to prevent the internal parts from freezing. Charge the handle several times during the first five minutes after leaving a warm shelter. Make sure you don't inadvertently load the weapon and have a negligent discharge.

When you clean your weapon, completely strip it and use a solvent that won't leave a residue to remove all lubricants and rust-prevention compounds. Once your weapon is clean, use a lubricant that won't thicken and cause your weapon to operate sluggishly or jam. Use Lubricant, Arctic Weapon (LAW) rather than BreakFree CLP in all weapons except the M249 Squad Automatic Weapon and M2 .50 caliber machine gun. Remember to use lubricants sparingly.

Another consideration is your battle-sight zero. You should

A Long and Chilly Trail

1LT MATTHEW NOWLIN
Maryland Army National Guard



I couldn't have been prouder of myself. It was the perfect plan, or so I thought. I would later realize that failing to consider the risk management process almost cost me my life.

It was a beautiful spring day in April, with an expected daytime temperature of around 60 degrees. I was looking forward to graduating from my state's Officer Candidate School in a few months. Only one thing was standing in my way—the 12-mile road march. I wanted to give the actual course a try, and this would be my only opportunity for a “dry run” before the timed event.

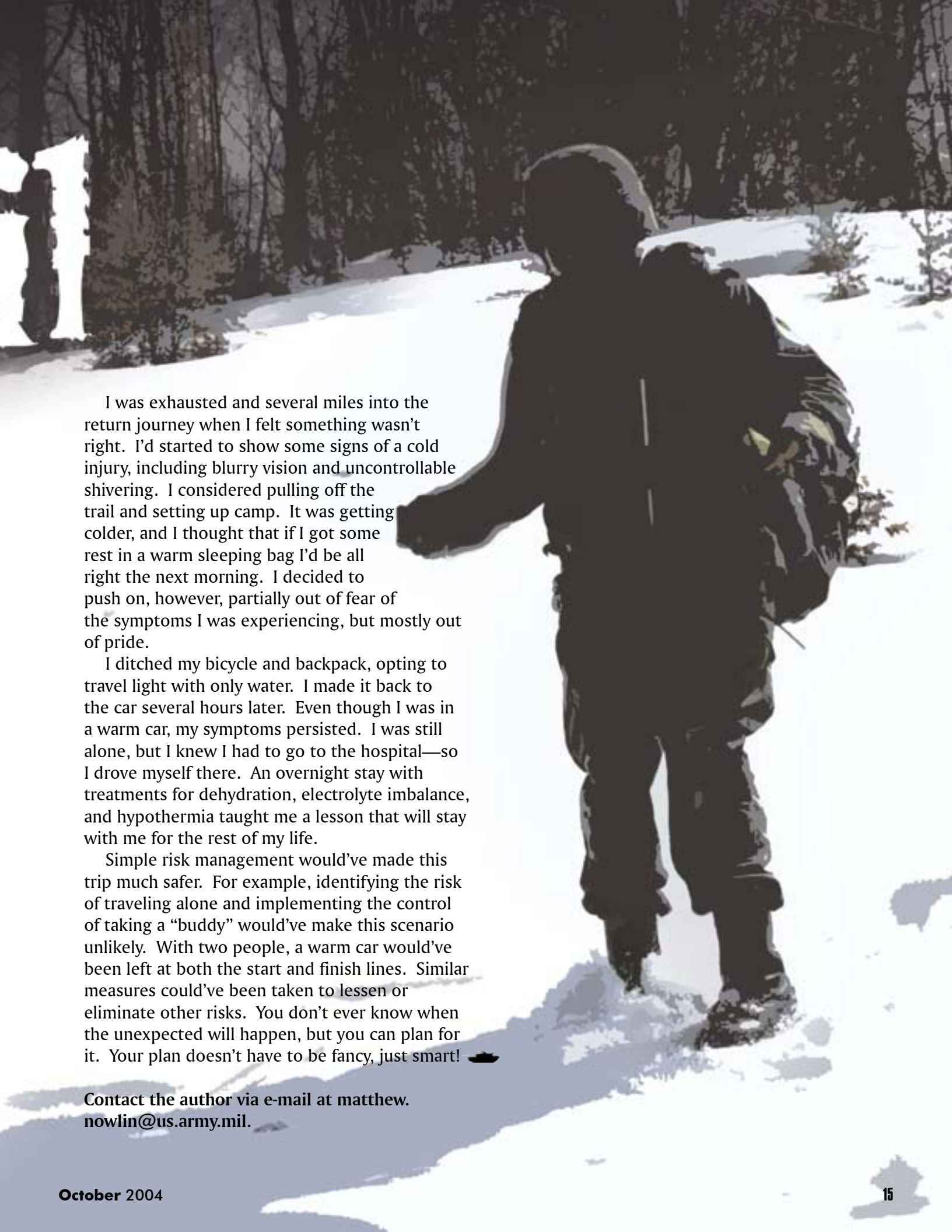
I started out alone on the course, which followed a canal in western Maryland. I didn't see any other hikers most of the day. The hike hardly seemed like work, and I was having a great time. But it wasn't the great weather, the canal and river winding its way through the mountains, or the occasional turkey that made this trip memorable. The “memorable” part would come later.

I finished the course with plenty of time to spare, so I sat down to eat and take in

more of the scenery. As I relaxed, I marveled at how well I'd planned and executed this one-man mission. I'd examined the route, planned what supplies to bring, and even put a bicycle at the route's end to ride back to my car. The expected events I'd planned for, but I'd failed to consider the unexpected.

I hadn't expected to get such a late start that day. When I finished the course, there was only an hour or two of daylight left. I also hadn't anticipated traveling back at night. And on this particular night, forecasters were warning of frost and temperatures dipping into the teens.

As the light faded and the temperature dropped, my plan began to unravel. The dark and cold made riding the bicycle on the trail difficult and dangerous. I soon had to get off and walk the bike. Suddenly, the original 12 miles I was supposed to walk became 24.

A person wearing a dark winter jacket, pants, and a hood, carrying a large camouflage backpack, is walking away from the camera through a snowy landscape. The ground is covered in snow, and there are snow-covered evergreen trees in the background. The person's shadow is cast on the snow to their right.

I was exhausted and several miles into the return journey when I felt something wasn't right. I'd started to show some signs of a cold injury, including blurry vision and uncontrollable shivering. I considered pulling off the trail and setting up camp. It was getting colder, and I thought that if I got some rest in a warm sleeping bag I'd be all right the next morning. I decided to push on, however, partially out of fear of the symptoms I was experiencing, but mostly out of pride.

I ditched my bicycle and backpack, opting to travel light with only water. I made it back to the car several hours later. Even though I was in a warm car, my symptoms persisted. I was still alone, but I knew I had to go to the hospital—so I drove myself there. An overnight stay with treatments for dehydration, electrolyte imbalance, and hypothermia taught me a lesson that will stay with me for the rest of my life.

Simple risk management would've made this trip much safer. For example, identifying the risk of traveling alone and implementing the control of taking a "buddy" would've make this scenario unlikely. With two people, a warm car would've been left at both the start and finish lines. Similar measures could've been taken to lessen or eliminate other risks. You don't ever know when the unexpected will happen, but you can plan for it. Your plan doesn't have to be fancy, just smart! 🐾

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Be the VIP in VPP

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The Occupational Safety and Health Administration (OSHA) established the Voluntary Protection Program (VPP) in 1982. The VPP is a formal means of recognizing sound management principles used in establishing and maintaining an effective safety culture. In 1998, federal workplaces were granted the right to participate in the VPP. To date, Tobyhanna Army Depot, Pa., is the only Army installation to achieve the VPP's top STAR recognition.

The VPP uses the following major elements to evaluate safety and health programs and determine STAR eligibility:

- **Management leadership and employee involvement**
- **Worksite analysis**
- **Hazard prevention and control**
- **Safety and health training**

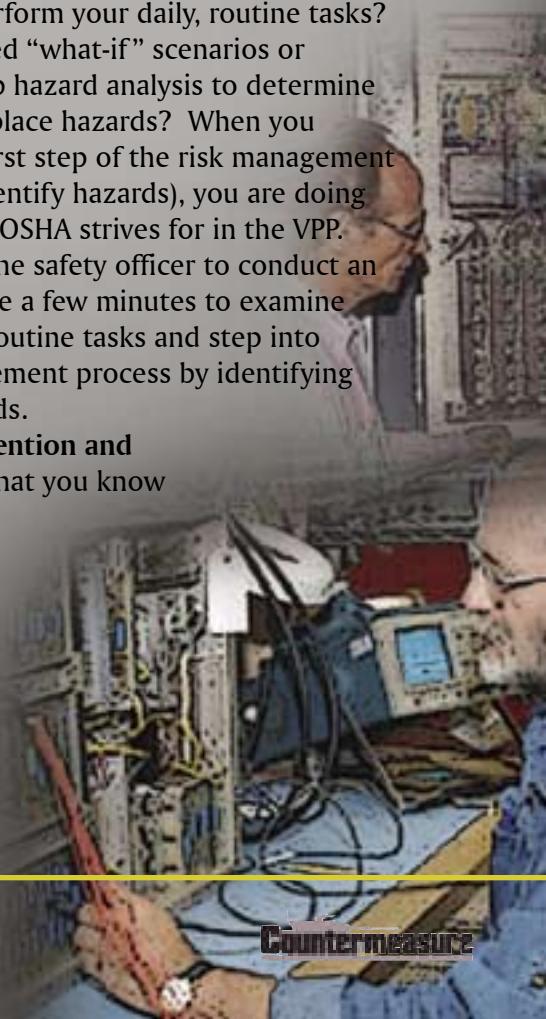
Is it worth the effort for an organization to attain VPP STAR recognition? Statistics show the average VPP site has a lost workday incident rate 52 percent below the average for its type of industry. Tobyhanna Army Depot experienced a 50-percent decrease in accidents by focusing on their safety and health efforts as they worked toward STAR recognition. Tobyhanna's success story continues as the depot wins work bids, due in part to decreased overhead and safety costs. In turn, the depot's employees enjoy the benefit of a safer workplace.

So what's the key to VPP success? It's YOU—you are the VIP in this program, the one that can make a difference. Whether you are a senior leader, commander, supervisor, staff officer, employee, or Soldier, you can make the VPP work for you and your organization. Let's look at how you can use the program's elements to become a STAR in your local safety culture.

Management leadership and employee involvement. There's something for everyone in this program element. If you're a leader, get personally involved and take a genuine interest in enhancing the safety awareness of everyone in your organization. When you show your workers that you care about their safety, it will encourage them to be safe. Whether you work in an office, industrial complex, construction site, or in the field, you're responsible for your safety and for developing safety awareness in those around you. Your active participation in the safety program, regardless of your role in the organization, will definitely make the difference.

Worksite analysis. You show up for work each day and seemingly nothing significant changes in your workplace environment. But have you ever stopped and closely examined the way you perform your daily, routine tasks? Have you applied "what-if" scenarios or completed a job hazard analysis to determine potential workplace hazards? When you complete the first step of the risk management process (i.e., identify hazards), you are doing the exact thing OSHA strives for in the VPP. Don't wait for the safety officer to conduct an inspection. Take a few minutes to examine both new and routine tasks and step into the risk management process by identifying potential hazards.

Hazard prevention and control. Now that you know the potential hazards in your work area, you can take positive action to mitigate those hazards. Before your start a task,



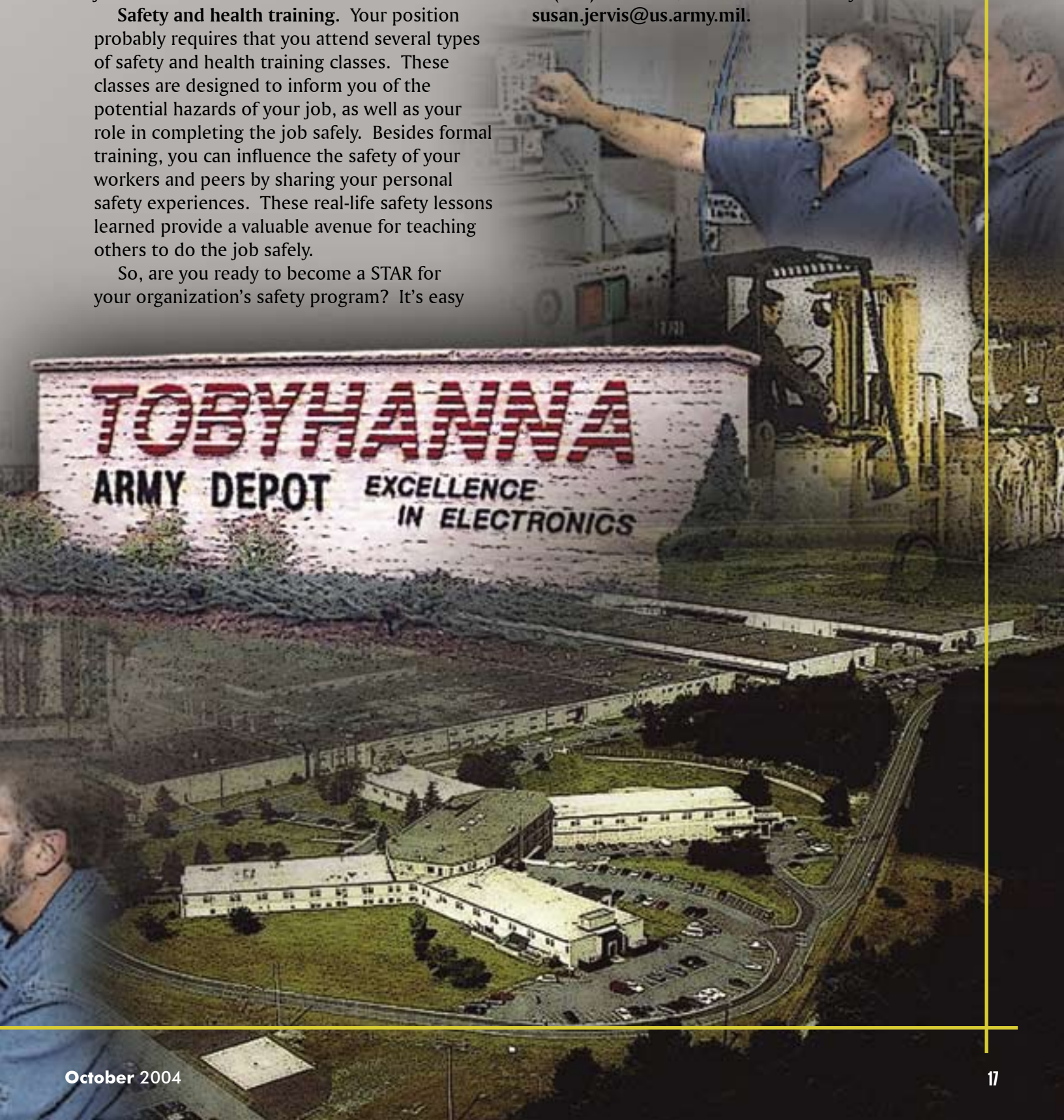
mentally check off your list of job safety rules. You're the one that has the most to gain by wearing the appropriate personal protective equipment or following the correct procedures. Contact your local safety staff to help you identify engineering controls to eliminate potential hazards and enhance the safety of your job site.

Safety and health training. Your position probably requires that you attend several types of safety and health training classes. These classes are designed to inform you of the potential hazards of your job, as well as your role in completing the job safely. Besides formal training, you can influence the safety of your workers and peers by sharing your personal safety experiences. These real-life safety lessons learned provide a valuable avenue for teaching others to do the job safely.

So, are you ready to become a STAR for your organization's safety program? It's easy

to implement the VPP elements. Besides, it's a great way to contribute to your organization's mission success and ensure you make it home to your family and friends at the end of the day. 🚚

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Are Captured Weapons Safe to Shoot?

The article, "Are Captured Weapons Safe to Shoot?" (April 2004 *Countermeasure*) has stirred a lot of reader interest and resulted in some informative e-mails. We'll share those below.

The April 2004 issue of *Countermeasure* had a fine article on non-U.S. weapons and their associated dangers. As a technical note, some information was misleading while still being correct. In commenting on the NATO 7.62 mm round being unable to be used in the AK-47, the author is correct. The NATO round will not replace the Russian 7.62x39 mm round. It is highly unlikely that anyone would try as the NATO round is much longer—the Russian round being a shortened cartridge (almost a pistol round) made specifically for assault rifles. I believe the 7.62x54 mm R round is a rimmed round derived from the cartridge used in the old Mosin-Nagant rifles going back to the late 19th century. While close to the same length as the NATO round, the 7.62x54 mm R looks very different and is not likely to be confused with the non-rimmed 7.62 mm NATO round.

A much more probable confusion is between the 5.56x45 mm round for the M-16 and its derivatives and the Russian 5.45x39 mm round for the AK-74. This was not highlighted in the article. Unless compared side by side (or close inspection of the rear of the case for the manufacturer's code) they are difficult to differentiate. The 5.56x45 mm will fit into the magazine of the AK-74 and can even be chambered, but the results of trying to fire it would be disastrous. I've handled all these weapons and rounds and still have a demilitarized 5.35x39 mm round on my mantle. The real experts are the people at my old unit, the 513th MI BN, here at Aberdeen Proving



Grounds. Of course they have been renamed and are now, I believe, the 203rd MI BN. They specialize in foreign materiel.

Charles Bedard
Mathematical Statistician
Army Evaluation Center
Aberdeen Proving Ground, Md.

Good observations! I had not considered a comparison of the 7.62 mm NATO and 7.62x54 mm R in this article. You're right about the Russian cartridge. It dates from 1891 and has survived until now as a standard military cartridge. I believe that makes it the oldest 7.62 mm (.30 caliber) cartridge still in military use. Indeed, it outlived the communist empire it helped to build!

I hope the following information will shed some light on this subject. I have been on active duty for 18 years and my assignments have allowed me to train with foreign weapons. My last posting took me to Fort Bliss, Texas, where I taught threat doctrine and systems to all branches of DOD. I also was tasked to teach small arms.

While assigned to Fort Bliss I deployed to Iraq to "look for weapons." I encountered the type of rifle you talked about in the article and it is not a Russian-made Dragunov SVD. Rather, the rifle is called an "Al Kadeshi" and was manufactured in Iraq. It is a mix of two rifles, 90 percent being the Russian SVD and 10 percent the Romanian FPK. There are two variants of this rifle. One is for live fire and field issue, while the other is for training only. The training rifle has a metal disk with the inscription (in Arabic) "training use" inlaid in the right-hand side of the buttstock. The training rifle also has a red grip cap, just like the rifle pictured in your article. If you look closely at the hole in the barrel, you'll see the metal has been blued. That means the hole was put there when the rifle was manufactured, not as an act of sabotage.

You make a very good point—foreign weapons should be inspected before they're fired.

SFC Warren Jueschke
Fort Bliss, Texas

Great response! Your observations on this article are correct and I passed them to the Air Force Special Operations Command, Hurlburt Field, Fla. They were the folks who were test-firing the captured rifle when it exploded and provided me the information. We moved to get the original information into the field quickly out of our concern for the safety of Soldiers in Iraq. The original story and your e-mail emphasize how important it is to be careful around captured enemy weapons.

I enjoyed the article, especially the part about using the proper ammunition. Like yourself, I'm a Makarov owner and shooter. I do think your article was a little misleading in one respect. The Makarov Web site (www.makarov.com) FAQ section does not endorse using anything other than the proper ammunition in any Makarov pistol. When asked about using a 9 mm Parabellum in the Makarov, this is what the folks at Makarov.com said:

"Holy smokes ...what are you trying to

do? Kill yourself?!? The 9mm Parabellum is a very high pressure round intended for locked-breech pistols. Look, fire a 380 ACP (Automatic Colt Pistol) from a .380 ACP pistol. Fire a 9x18 mm Makarov from a 9x18 Makarov pistol. Fire a 9mm Parabellum from a 9mm pistol. It's that simple. If you want a multi-caliber handgun, get a .357 Magnum; then you can fire .38 Specials from it."

Yes, the 9 mm Parabellum can be chambered in a 9x18 mm Makarov. However, it is very clear that it is unsafe to fire anything but the correct ammo.

SFC Daniel S. Masessa
Equipment Specialist
DCSLOG-MAINT
Maine Army National Guard

Hearing Loss Equals Combat Casualty

One of the benefits of working at the U.S. Army Safety Center is that Countermeasure is available on our Web page in PDF format before distribution hits the streets. An early on-line reader of our September 2004 issue had the following comment about the article, "Hearing Loss Equals Combat Casualty."

Hooah!!!!!!!—and thank you. Our audiologist is Baghdad is telling us he has yet to see a perforated eardrum from mortars or roadside attacks in anyone who was wearing hearing protection. One of the best, or at least one of the most elegantly put, endorsements we've received on the Combat Arms Earplug was the following from an infantry officer in Taji, Iraq.

"Combat Earplugs—the yellow and green ones—work great in this environment! I was able to test them two different times, and they probably made the difference between having eardrum and hearing damage and not. They definitely allow you to mentally recover very quickly so you are able to deal with your 'situation' versus standing around like a stunned mullet."

Dr. Douglas Ohlin
USACHPPM
Aberdeen Proving Ground, Md.

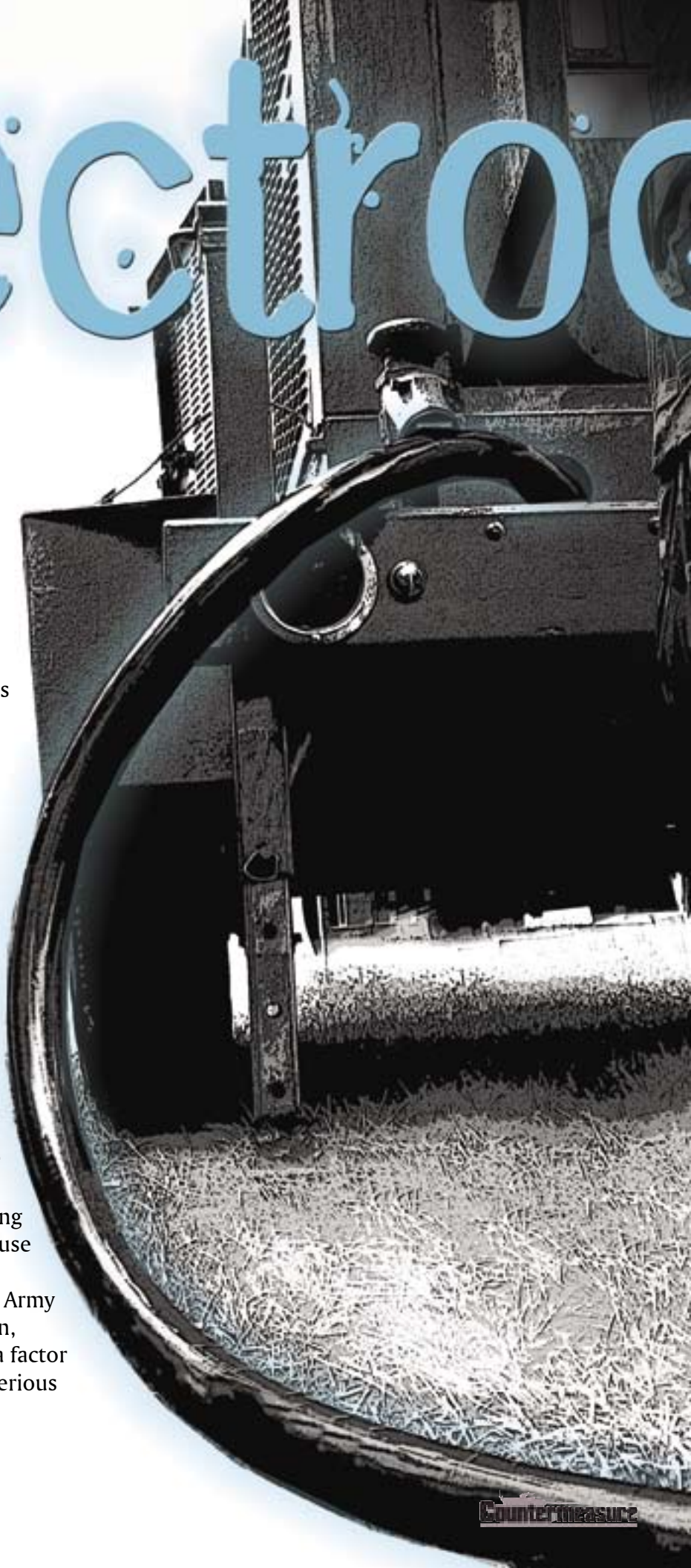
electro

There are many hazards in combat, including the enemy and his weapons, the heat and cold, and vehicle and weapons accidents. However, another killer of Soldiers has emerged in Iraq this past year—electrocution—and it's a killer that is growing at an alarming rate. Five Soldiers have died from electrocution in Iraq this fiscal year. Two recent cases are cited below.

One Soldier died and another was injured in a swimming pool in the Iraqi theater last May. Although the incident is still under investigation, it appears the Soldier was killed when an electrical current charged the pool, likely traveling from the water filtration system to the pool's edge. The preliminary investigation revealed the water pump had not been properly grounded.

Less than two weeks later another Soldier was found dead, lying on a shower room floor with burn marks on his body. The apparent cause was electricity that traveled from the water heater through the metal pipes to the showerhead. Again, improper grounding of electrical systems is the probable cause of this Soldier's death.

According to Frank Trent of the U.S. Army Corps of Engineers Gulf Region Division, Baghdad, Iraq, improper grounding is a factor in nearly every electrocution and is a serious threat for Soldiers and civilians there.





caution:

CW4 (RET) BRETT BLOUNT
Safety Specialist
MACOM Support Branch
U.S. Army Safety Center

The Unexpected Killer

“We’ve had several shocks in showers and near misses here in Baghdad, as well as in other parts of the country,” Trent said. “As we install temporary and permanent power on our projects, we must ensure we require contractors to properly ground electrical systems. I have seen and also have received reports about generators being improperly or inadequately grounded.”

Because coalition forces are using many different types of commercial generators there can be confusion about how they should be grounded. However, the principles of grounding remain the same, regardless of generator size and manufacturer.

Michael F. Howell, chief of the Buildings System Division at the U.S. Army Corps of Engineers Transatlantic Program Center, explained that a properly grounded electrical system consists of two major components: an earth system ground and an equipment safety ground. “The purpose of the earth system ground is to intentionally tie the power supply (generator) to earth. The ground-to-earth connection limits voltages on the system due to lightning (strikes), line surges, or accidental contact with other electrical systems.”

He added it’s the second component of proper grounding—the equipment safety ground—where the major problems are arising.

“The purpose of the equipment safety ground is to prevent or remove dangerous voltages that could exist on exposed metal surfaces during a ground fault condition, or because of improper wiring connections,” he said. “This is accomplished by interconnecting the metal parts of the electrical system and then tying them to the earth system ground. Accidental deaths are much more likely to be related to problems with the installation and maintenance of the equipment safety ground than the earth system ground.”

The effectiveness of the earth system ground is dependent on the soil’s moisture content, temperature, and resistivity (how much the soil resists the flow of electricity from the ground rod). Temperature is only an issue in permafrost situations. However, in arid conditions—such as in Iraq—the soil’s moisture content and resistivity can be big concerns. Any field expedient method that adds moisture and salt to the soil will help. While there are no standards or guidelines



No Exceptions!

Adhere to the guidelines already established by ALL of the Army's subordinate commands. Tie neutral and ground terminals together at the generator set output terminal lugs. Then tie that neutral ground connection to the generator set frame. Finally, tie that generator set frame to a PROPERLY installed earth ground. If a system contains a separate component, such as a motor with a water pump, the electric motor must be grounded to the frame holding the motor and pump. Tie that frame to the same ground as the power source. **NO EXCEPTIONS!**

for these methods, the simplest technique is to dig a trench around the grounding rod and add rock salt and water. However, this should only be considered a temporary answer because it requires maintenance (adding more water and salt), becomes less effective over time, and pollutes the soil.


There are two commonly used permanent methods. One is to dig a trench or hole, fill it with a material that will enhance conductivity (Bentonite clay is often used), and insert the grounding rod or ring into it. The clay should be placed in a trench or an augured hole surrounding a ground ring conductor or ground rod.

The second method is to use electrolyte rods. One widely used electrolyte rod consists of a copper pipe that has weep holes in the bottom and is filled with non-toxic salts. The pipe is surrounded by moisture-retaining material and has a breather cap at the top. The rod improves the electrical conductivity of the soil by extracting moisture from the air and then time-releasing ionized salts through the weep holes.

Both permanent methods can be purchased commercially and are relatively inexpensive and install quickly.

The U.S. Army Corps of Engineers Safety Manual EM 385-1-1, Section 11, contains the standards governing the proper grounding of electrical systems. For more detailed information check the Web at <http://www.hq.usace.army.mil/soh/em385/current/current38511.htm>.

Providing Soldiers and civilians in Iraq with electricity and functional electrical systems is a complicated and daunting task. Only those individuals properly trained to work with electrical systems should ever attempt to repair or inspect them.

Leaders, take the time to assess the state of your organization's electrical systems. Get your electrical experts to properly inspect your generators and electrical systems. Make sure you include the less obvious systems, such as shower water heaters, lighting systems, and pool filtration pumps. 

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AMV

Class A

■ Soldier was killed when the LMTV he was riding in overturned. The LMTV's driver was operating the truck in a convoy and lost control after passing a civilian POV. Thirteen other Soldiers suffered injuries.

■ Four Soldiers drowned after their HMMWV ran off the roadway into a canal. The driver reportedly lost control of the vehicle, which was part of a convoy.

■ Soldier was killed when the HMMWV he was riding in rolled over. The driver was attempting to turn the vehicle around on the roadway at the time of the accident. The deceased Soldier was the vehicle's gunner and was thrown from the vehicle. The driver was injured but survived.

■ Soldier died after the M923A2 truck he was operating overturned. The Soldier lost control of the truck during a convoy movement in rainy conditions, causing the vehicle to run off the roadway and overturn in a drop-off. The Soldier was wearing his seatbelt.

Class B

■ Three Soldiers were hospitalized with injuries after their HMMWVs collided. The two HMMWVs, which were acting as lead, were traveling in separate convoys and in opposite directions when they hit. Two other Soldiers suffered minor injuries.



Personnel Injury

Class B

■ Soldier's thumb was severed by a power saw. The Soldier was positioning a 2x4 wood beam under the saw at the time of the accident. Although the thumb was reattached, the Soldier suffered permanent loss of use in the digit.

■ Soldier suffered a permanent partial disability when he was struck in the face by the locking handle of a trailer ramp. The Soldier was assisting other personnel in reattaching the trailer's rear ramp when he was hit.



POV


Class A

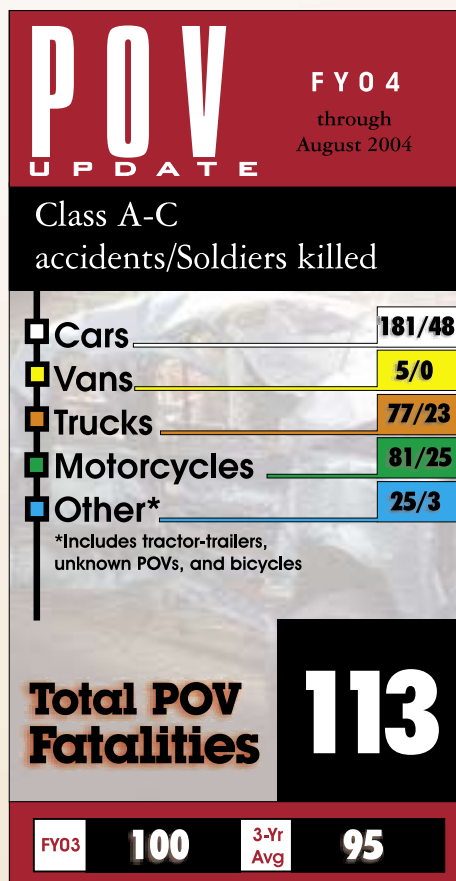
■ Soldier suffered fatal injuries when the vehicle he was riding in overturned, ejecting him. The driver, also a Soldier, had swerved to avoid a passing vehicle and lost control of her car just before the accident. The driver, who was wearing her seatbelt, was treated for minor injuries.

■ Soldier died after his motorcycle struck another vehicle head-on. The Soldier was passing other vehicles on a two-lane road during the late evening hours when the accident occurred.

■ Soldier was killed when her vehicle collided with a barrier and was hit by an oncoming truck. The Soldier's vehicle crossed the centerline just before the accident.

■ Soldier suffered fatal injuries when her vehicle was struck on the driver's side by a full-size pickup truck. The Soldier reportedly ran a stop sign. Immediately after the accident, the Soldier was transported to a local hospital, where she was kept overnight. However, the Soldier was found dead at her home after she was discharged from the hospital. An autopsy determined the preliminary cause of death to be a pulmonary thromboembolism caused by blunt trauma to the torso and lower extremities.

■ Soldier died after his vehicle rolled several times on an interstate highway. The Soldier swerved and lost control of the vehicle just before the accident, causing it to flip. 





Don't be a burden on your battle buddy!

Watch for these signs of cold weather injuries:

- DIZZINESS, WEAKNESS, OR BLURRED VISION
- SWOLLEN RED OR DARKENED SKIN
- PAINFUL, TENDER, HOT, OR ITCHY SKIN
- NUMBNESS OR TINGLING
- BLEEDING OR BLISTERED SKIN
- NUMB, GRAY, OR WAXY SKIN THAT FEELS "WOODEN" TO THE TOUCH
- VIGOROUS SHIVERING
- LACK OF COORDINATION AND IMPAIRED JUDGMENT
- PAINFUL, RED, WATERY, OR GRITTY FEELING IN THE EYES
(SNOW BLINDNESS)

